



DOE SNF WASRD Related Issues

W. Hurt



*Providing for safe,
efficient disposition of
DOE spent nuclear fuel*

Requirement

- MOA Section VII, B. Acceptance Criteria Development

....RW shall, in a timely manner, develop and update, in coordination with EM and in accordance with Appendix C, integrated acceptance criteria for acceptance, transportation, storage (if needed) and disposal...



Issues

- Retention of non performance-based Part 60 criteria
 - Pyrophoricity
 - Particulates
 - Residual Water
- Some criteria cannot be directly measured
- Are criteria necessary if only best available data are required



Pyrophoricity, Combustibility, Explosivity, and Chemical Reactivity

- *... shall contain no more than trace quantities of materials that can ignite spontaneously in air...*
- *... shall be free of compounds in concentrations that could be considered to be combustible, explosive, or violently chemically reactive...*
- *... shall not contain gaseous hydrogen where there is a potential for hydrogen deflagration...*
- *SNF placed in disposable canisters....requires only that “best available data” be reported...*



Particulate Content in DOE SNF Canisters

- *There are no limits on non-reactive radionuclide particulates in canistered DOE SNF.*
- *Reactive particulates in a DOE SNF canister shall not exceed 1.4 kg (TBV-X09).*
- *SNF placed in disposable canisters compliant with the canister-drop survivability requirement are not required to be compliant with the reactive-particulate requirement, but the projected particulate content in the canister must still be reported*



Residual Water in DOE SNF Canisters

- *U-metal*
 - *Sealed canisters containing U-metal SNF shall not contain more than 0.2 kg (TBV-X07) of total residual water (free and bound)...*
- *Non U-metal*
 - *Sealed canisters containing any SNF other than that with U-metal matrix shall contain no more than 1.3 kg (TBV-X07) of total residual water...*
- *Residual water cannot be measured directly*



Recommend Path Forward

- Resolve comments on WASRD R4
- Continue to work towards performance-based requirements while balancing with acceptable methods for compliance
- The WASRD and compliance plans are part of an iterative process.
 - ongoing design changes will result in additional changes to the WASRD
 - the time to get involved is now
- Compliance plans facilitate the continuing dialog

